Docket No.: 1460.1034   Serial No. 10/025,861

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with <u>underlining</u> and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claims 1 and 2 in accordance with the following:

1.   (CURRENTLY AMENDED) Communication performance measuring equipment measuring communication performance of a communication system in which at least one client and at least one server are connected via a network including a plurality of routers, in which the communication performance measuring equipment is communicable with a client subject to evaluation, included in said at least one client, and a server subject to evaluation, included in said at least one server, the communication being through a path branching from a path in a branching node which exists on the path between said client and said server subject to evaluation, the communication performance measuring equipment comprising:

a communicating unit communicating via the network according to TCP/IP;

an input unit receiving a parameter which includes at least a server identifier identifying said server subject to evaluation and a client identifier identifying said client subject to evaluation or an access point to be used by said client, and represents a communication environment to be evaluated;

a communication controlling unit controlling communication operation of said communicating unit according to a predetermined procedure, the communication operation being performed for acquiring a predetermined file from a server;

a packet transmitting/receiving unit transmitting/receiving a predetermined control packet to/from a destination identified by an identifier which is specified according to an inputted transmission instruction;

a situation inspecting unit collecting information about transmitting/receiving conditions of said predetermined control packet transmitted to each destination and of a predetermined control packet returning from each destination in response to the transmitted control packet;

a primary transmission instructing unit inputting, to said packet sending/receiving unit, a transmission instruction to specify the client identifier and an identifier identifying a branching node as destinations, according to receiving conditions of a data packet or a control packet in said communicating unit;

a delay estimating unit estimating a difference between a delay time in transmitting a data packet from said server subject to evaluation to said client subject to evaluation, based on a predetermined delay model and said information collected by the situation inspecting unit in a course of exchanging said predetermined control packet with the client subject to evaluation and with the branching node, and a delay time in the data packet reaching said communication performance measuring equipment from the server subject to evaluation;

a reply controlling unit emulating an acknowledgement from said client subject to evaluation, by adjusting a time instant at which said communicating unit is to transmit an acknowledge packet upon receiving a data packet or a control packet from the server subject to evaluation, according to the estimated difference delay times; and

a performance estimating unit collecting information about a-progress in the communication with said subject to evaluation by of-said communicating unit, and estimating communication performance on a communication path between the client and the server based on the collected information.

2.   (CURRENTLY AMENDED) The communication performance measuring equipment according to claim 1, wherein:

said situation inspecting unit comprises:

a transmission detecting unit recording, for every destination as a transmission time, a time instant at which transmission of said predetermined control packet is detected, the transmission being performed by said packet sending/receiving unit to each destination, a reception detecting unit detecting reception of a control packet by said packet sending/receiving unit, the control packet returning from each destination as a response to said predetermined control packet transmitted to each destination, and recording, for every destination as a reception time, a time instant at which the reception is detected, and

a time informing unit informing said delay estimating unit of the transmission time and the reception time of each destination; and

said delay estimating unit comprises:

a round-trip time calculating unit calculating a first round trip time and a second round trip time, based on the transmission time and the reception time informed by the time informing unit, the first round trip time being required for said predetermined control packet to reciprocate between the client and the communication performance measuring equipment, and the second round trip time being required for said predetermined control

packet to reciprocate between the branching node and the communication performance measuring equipment, and

a difference estimating unit for estimating, based on the first round trip time, the second round trip time, and the delay model, a difference between a time required to deliver the data packet or a control packet from the server to the communication performance measuring equipment, and a time required to deliver the data packet or the control packet from the server to the client.

3.   (PREVIOUSLY PRESENTED) The communication performance measuring equipment according to claim 1, wherein said input unit comprises:

a path information collecting unit collecting first path information consisting of identifiers identifying respective nodes existing on the path from the communication performance measuring equipment to the client, and second path information consisting of identifiers identifying respective nodes existing on the path from the communication performance measuring equipment to the server; and

a branch detecting unit for detecting an identifier for identifying a branching node by comparing the first path information with the second path information, and for inputting the identifier as a part of the parameter.

4.   (PREVIOUSLY PRESENTED) The communication performance measuring equipment according to claim 1, wherein said input unit comprises:

a secondary transmission instructing unit giving an instruction to said packet sending/receiving unit to transmit, to the client, two control packets having a predetermined form and different data lengths from each other;

a round-trip time measuring unit measuring a round trip time of each of the two control packets, the round trip time being a time taken from transmission of the control packet to reception of an acknowledge packet in response to the transmitted control packet; and

a coefficient estimating unit estimating a coefficient associated with a factor which varies depending on the size of a packet to be transmitted, in a predetermined delay model representing data transmission between a branching node and the client, and inputting the estimated coefficient as a part of the parameter, based on the obtained round trip time of each of the two control packets.

5.   (PREVIOUSLY PRESENTED) The communication performance measuring equipment according to claim 2, wherein said delay estimating unit comprises:

an offset calculating unit calculating, based on a predetermined model, a factor of a delay time due to accumulation of data packets when the data packets are transmitted from the server to the client in a burst mode, and outputting the resultant as an offset corresponding to the difference obtained by the difference estimating unit; and

a difference output unit adding the offset to the value estimated by the difference estimating unit, and outputting the resultant as an estimated value.

6.   (PREVIOUSLY PRESENTED) The communication performance measuring equipment according to claim 5, wherein said delay estimating unit further comprises a stop decision unit comparing the calculated offset with a predetermined threshold, and instructing said reply controlling unit to stop the transmission of the acknowledge packet, according to the comparison result.

7.   (PREVIOUSLY PRESENTED) The communication performance measuring equipment according to claim 1, wherein said performance estimating unit comprises:

a first recording unit monitoring transmitting/receiving operation of a control packet and a data packet performed by said communicating unit, and recording start time and finish time of each of procedures which are defined in HTTP; and

a duration calculating unit calculating a difference between the start time and the finish time as a duration for each procedure, and calculating a sum of the duration of the procedures.

8.   (PREVIOUSLY PRESENTED) The communication performance measuring equipment according to claim 1, wherein said performance estimating unit comprises:

a second recording unit monitoring transmitting/receiving operation of a control packet and a data packet performed by said communicating unit, and recording start time and finish time of each of procedures which are defined in FTP; and

a duration calculating unit calculating a difference between the start time and the finish time as duration for each procedure and calculating a sum of the durations of the procedures.